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Fundamental Design Flaws of United States Constitution

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Abstract

The United States Constitution is one of the most important documents in the history because it has set an example of a successful constitutional democracy for the world, and the freedom, peace, and prosperity of American people over last 227 years have been built upon the constitution. Despite its importance, this paper shows that the US constitution has many fundamental design flaws. In an earlier paper, we have proposed that the most stable political structure for any nation is the equilibrium political structure characterized by a set of 16 democratic principles. The natural following up research is to compare the US constitution with the theoretical equilibrium political structure. The results of the comparison are very fascinating and summarized in this paper. The conclusion is that although the US constitution is very well-designed overall, there are many fundamental design flaws, and many problems facing this country right now are direct results of the design flaws of US constitution. This paper has one profound implication for the future generations: the US government will probably be the first government in the world history that will last forever. The reason is simply because the current US constitution is very close to the equilibrium political structure, and all equilibrium structures in physics, chemistry, and biology can last forever. The United States constitution will be almost perfect if we can correct 22 fundamental design flaws outlined in this paper.

1. The Most Important Document in History

Each year around July 4, American comes together to celebrate with joys their Independence Day. Most of American would tell you from their bottom of their hearts that this is a great country that they are very proud of.

There is a long list of accomplishments American can be proud of. Most American are immigrants or offspring of immigrants from all over the world. In their own home countries, they might be at wars with each other like Russia and Ukraine, Israel and Palestine, or North and South Korean. Once they arrive and become citizens of this country, they are all transformed into friendly neighbors. There is a magic about this country. That magic is the United States Constitution.

The United States is not the largest country in the world in terms of land, resources, or population. The only reason, that the US became the most powerful country in the world in terms of military, economy, world politics, or science and technology, is the United States Constitution.

Internationally, people in almost every country in the world have pointed to the United States as their models of a successful constitutional democracy for last 227 years. Therefore, there is no doubt that the United States Constitution is the most important document in history.

However, people are starting to notice more and more political decays [1, 2] in this great nation.

For example, on the July 4 weekend of 2014 in the great city of Chicago, 82 people were shot and 14 of them fatally [3]. Some people were shot when they were barbecuing in their own backyard. There is no ongoing civil war in Chicago. Actually this was just a norm long weekend in Chicago. Gun violence in US is like an incurable social disease plaguing this country. According to various gun violence statistics [4, 5], on average more than 100,000 people are shot in US every year. During the ten year period between 2000 and 2010, a total of 334,000 people were fatally shot. The non-partisan Congressional Research Service estimated [5] that the US has 310 million firearms in civilian hands as of 2009. In the same year, the US population is about 306 million. The gun violence has effectively turned many inner cities in the country into low intensity battlefields with much higher rates of violent crimes than the national average. The gun violence of this country has also spilled over to other countries like Mexico and many firearms used in violent crimes in Mexico are from the US.

The epidemic gun violence is just the tip of the ice burger of the political decays. The runaway federal budget deficits and the astronomical promised financial liability are equally frightening. Even more discouraging is the performance of politicians in Washington. The political machine seems to be almost paralyzed. For years, the congress could not even pass a budget. The health care in US are much more expensive than anywhere else in the world. Yet people in US are no healthy than other advanced countries. The politicians could not work together to find a sensible solution to the crippling medical costs.

In this paper, we show that many problems facing this great country are deeply rooted in the fundamental design flaws of the US constitution. While there could other flaws like operational flaws, this paper is focused on the fundamental design flaws of the

US constitution comparing the equilibrium political structure, following a series of papers published earlier [6-10].

It should no surprise that US constitution is flawed. First of all, the constitution has nearly unchanged since written by framers in 1787. There have only 27 amendments including the first 10 amendments known as the Bill of Rights adopted in 1791. Over last 227 years, the country has changed dramatically in every way. Second, the constitution was a product of political compromise by the state delegates [11-12]. For example, the Great Compromise is a direct contradiction to “all men are created equal” in the Declaration of Independence. The Great Compromise causes the under-representation of citizens in populous states like New York and California. The constitution was written by framers in just a few months during the constitutional convention. Third, the constitution is not based a coherent scientific political theory. The framers of the constitution invented many new ideas by themselves and have adopted the best political philosophies at that time including John Locke’s the consent of the governed, Hobbes’s social contract theory, Montesquieu’s divided governments, and Edward Coke’s civil liberties. As described in an earlier paper [10], the scientific foundation of political science is actually quantum physics created in 1920s. Fourth, we have learned a great deal empirically about governing from experimenting different forms of governments around the world over last 227 years.

In the earlier paper [10], we conclude that the question how humanity should govern itself is 100% solvable if the question is formulated into the question what the most stable political structure is. The most stable structure problems are ubiquitous in the condensed matter physics, chemistry, and biology. These problems are governed by the same physics law of equilibrium, which is the generalized second law of thermodynamics. The most stable political structure is the equilibrium political structure characterized by a set of 16 democratic principles.

The natural following up research is to compare the US constitution with the theoretical equilibrium political structure. The results are very fascinating and summarized in this paper. Overall the US constitution is very well-designed. There are many fundamental design flaws. Many problems facing this country right now are direct results of the design flaws of US constitution.

Since the day when the constitution was signed by the state delegates in 1787, the constitution was under nonstop attacks and criticisms. Recently, the retired Supreme Court Justice Paul Stevens proposed 6 new amendments [13] to the constitution. Other constitutions scholars [14-16] have proposed more amendments. This paper is different from earlier works in several important ways:

- (1) This paper is neither my personal political philosophy nor my personal political opinions. It truly is value-free quantum politics or physics. The equilibrium political structure is a quantum politics or physics concept, which is independent from personal political philosophies and political views. In essence, anyone else can repeat the same comparison and reach the same conclusions as long as they are following the natural flow of logic.
- (2) This paper has one profound implication for the future generations: the US government will be the first government in history that probably lasts forever.

The reason is simply because the current constitution is very close to the equilibrium political structure and equilibrium structures in physics, chemistry and biology can last forever. The US constitution is almost perfect if we can correct some fundamental design flaws outlined in this paper. In essence, all naysayers [2] about falling of the American Empire, who are drawing conclusions from histories, are wrong.

The following is an outline of the paper. In Section Two of this paper, we first describe the 5 physics laws of social science. In Section Three, we summarize the equilibrium politic structure characterized by the 16 democratic principles. In Section Four, we discussed in details how the US constitution compared to each of these 16 democratic principles. In Section Five, we summarize the discussions.

2. Five Physics Laws of Social Science

One of the most fundamental questions in social science is whether exist universal laws of social science, which would unite all knowledge of social science, in the same manner fundamental laws of physics unite all knowledge of natural science.

An important clue that leads to establish laws of social science is the fact that fundamental concepts in social science, such as information, choice, causality, uncertainty, equilibrium, the most stable structure, and the direction of time, are also shared by many fields of natural science including quantum mechanics. In the framework of quantum physics, these concepts can be defined precisely in the language of mathematical physics. Once correctly formulated, the precise descriptions and behavior of these concepts, which becomes five physics laws of social science, are universally applicable to all fields of social and natural science.

Humans and human societies are made of elementary particles, and the behavior of elementary particles is governed by quantum mechanics. Therefore, there should be no surprise to anyone that quantum physics indeed is the theoretical foundation of all fields of social science. Quantum physics is widely believed to be the theory of everything, and everything must include politics and other fields of social science.

The starting point of establishing a scientific foundation for political science is the five physics laws of social science, which have been published elsewhere in a book [6] and an academic paper [7]. For the benefit of readability of this paper, we list five physics laws of social science in the following.

First Law – Law of Indeterminacy

For a closed system, the outcome of any future event in the system is indeterministic. The quantum uncertainty of the future is the fundamental property of nature and cannot be overcome by any means.

Second Law – Law of Prediction

For a closed system, any future event in the system can be and can only be predicted precisely to the extent of a joint probability distribution among all

possible outcomes. The joint probability distribution function exists and is uniquely given by quantum mechanics.

Third Law – Law of Choice

Actions, which are constrained by fundamental laws of physics, can be taken between time 0 and time T to modify the joint probability distribution function of time T of a closed system.

Fourth Law – Law of Information

The complete historic information of any closed system cannot be recreated based on today's complete information. At any time step, new information is created and some historic information is lost permanently.

Fifth Law – Law of Equilibrium

For a system under certain constraints, quantum uncertainties in the system will eventually push the system toward equilibrium states.

Five physics laws of social science are closely related with each other. The Law of Indeterminacy is the starting point. The Law of Predict the Future addresses how to predict the future and the causality relationship of an indeterministic system. The Law of Choice addresses how to make a choice and the flexibility and plasticity of an indeterministic system. The Law of Information addresses how information is created and destroyed. The Law of Equilibrium, which is the generalization of the Second Law of Thermodynamics, addresses the direction of time and the equilibrium state of an indeterministic system. These five fundamental laws of physics are profound statements about the nature and human societies.

The explanation and discussion of these five laws can be found in the book [6] and the paper [7]. These laws are fundamental laws of physics, which are applicable to any system including any physical and biological systems, and human societies. Fundamental equation of economics is one application of these physics laws in economics. Five physics laws of social science can be viewed as an extension of quantum physics to macroscopic systems. Many macroscopic phenomena like human free will could only be explained fully by applying quantum physics.

3. Equilibrium Political State

One problem is standing out above all others in social science: how should humanity govern itself? The problem is so important that all wars of humanity in the past, present, and future, are directly related to this problem. An earlier paper [10] has proved that this problem is solvable scientifically applying physics laws of social science, if the problem is formulated in a correct way: what kind of governing political structure of humanity is most stable? Most-stable structure problems appear routinely in the theoretical and experimental condensed matter physics. We show that the humanity

governing problem is equivalent to find an equilibrium political structure of a human society, which is a many-body physics problem 100% solvable using the maximum entropy approach widely-used in the condensed matter physics. Quantum politics says that we can create free, fair, just, peaceful, and prosperous human societies. There is certainly no better alternative than the equilibrium political structure, which is defined by a set of 16 democratic principles.

In this section, a short summary of these 16 democratic principles are in the following to show the common physics foundation of these democratic principles.

The principle of maximum freedom says that a free society should give individuals the maximum freedom and liberty because people love freedom, and the maximum freedom will push the economy toward the most efficient state and bring out the maximum creativities in fields of science, technology, and arts according to the law of equilibrium.

The principle of nonviolence and voluntary contract is to resolve conflicts of free wills without violence and to restrain free wills without harming the individual's freedom by asking citizens to be held accountable for voluntary contracts agreed by themselves.

The accountable citizen test is designed to tell whether a citizen can be held fully accountable for his or her voluntary contracts. With the exception of underage children and people with mental disability, nearly all people in a society are accountable citizens.

The principle of political equality says that all accountable citizens must have equal political rights. The principle of political equality means that the equilibrium political state is a symmetric structure with the exchange symmetry.

The principle of the rule of law guarantees that voluntary contracts will be enforced.

The principle of separation of power rise naturally from voluntary contracts. If the power could only come from citizens' voluntary contracts, the political power will not be concentrated in just one or a few people acting as rulers.

The principle of check and balance is needed because we cannot predict precisely how elected officials will behave according to the law of prediction. Strong institutional checks and balances will minimize probabilities that elected officials would abuse their powers.

The principle of optimal decision making is to optimize the collective decision making processes through scientific forecasting, separation of power, balancing interests of all parties involved, carefully choosing the goals and value systems by balancing the science, religion, and political philosophies, and carefully choosing the decision making methods.

The principle of individual rights and fiduciary duty says that fundamental individual rights must be protected from the governments, and collective decision makers have the fiduciary duty to guard interests of other citizens including the minority, children, the unborn future generations, foreigners, animals, plants, other living creatures, and the environment in general. The chronicle problems of budget deficits and environmental degradation are examples that political leaders have failed their fiduciary duty.

The principle of no scientific ultimate purpose comes from the fundamental limitation of science and technology. There are many important questions in social science that cannot be 100% answered by science. Science cannot answer what is the

ultimate purpose for an individual or for a society. The human beings are fundamentally purposeful animals. While an individual can choose to have an ultimate purpose according to his free wills, a society must not have an ultimate purpose. To establish an ultimate purpose for the society would lead the society on the road to serfdom.

The principle of no scientific value system follows the similar logics. Because the value system is essential for virtually all decision making, quantum politics emphasizes the importance of personal religions and philosophies. The political equilibrium structure emphasizes the diversity of human behavior and the culture pluralism.

The principle of separation of church and state says that the government must not establish the official religion, and no ancient religious teachings should be used as the foundation of the constitutions. The law of information says ancient religious teachings are out dated. The law of prediction says ancient religious teachings have diminished powers to predict future challenges.

The principle of fairness says that in as long as the rules and the process of running a game are fair, the outcome of the game is fundamentally fair. The government should mainly concern the fairness of competition rules not outcome inequality such as the rich and poor gap.

The principle of maximizing wealth says that a human society will always try to maximize the wealth. The increasing wealth is a way to maximize the individual freedom.

The principle of human dignity says that a free society and the government have obligations to help its less fortunate citizens maintain human dignity through the social welfare system.

The principle of limitation of science and technology sets the boundary of science and technology. The decision making processes must go outside the boundary to use personal religions and philosophies. On the other hand, the individual freedom, economic development, and science and technology progresses would push the human knowledge to the limits of science of technology.

The principle of globalization says that the law of equilibrium will push the globalization of the political, economic, and legal systems toward the world permanent peace.

All these 16 principles are based the concept of free will and physics laws of social science. Because people's free wills are quantum uncertainties and the behavior of free will can be only described by quantum mechanics, these sixteen democratic principles are rooted in quantum mechanics, and they are universally applicable to all nations and the world.

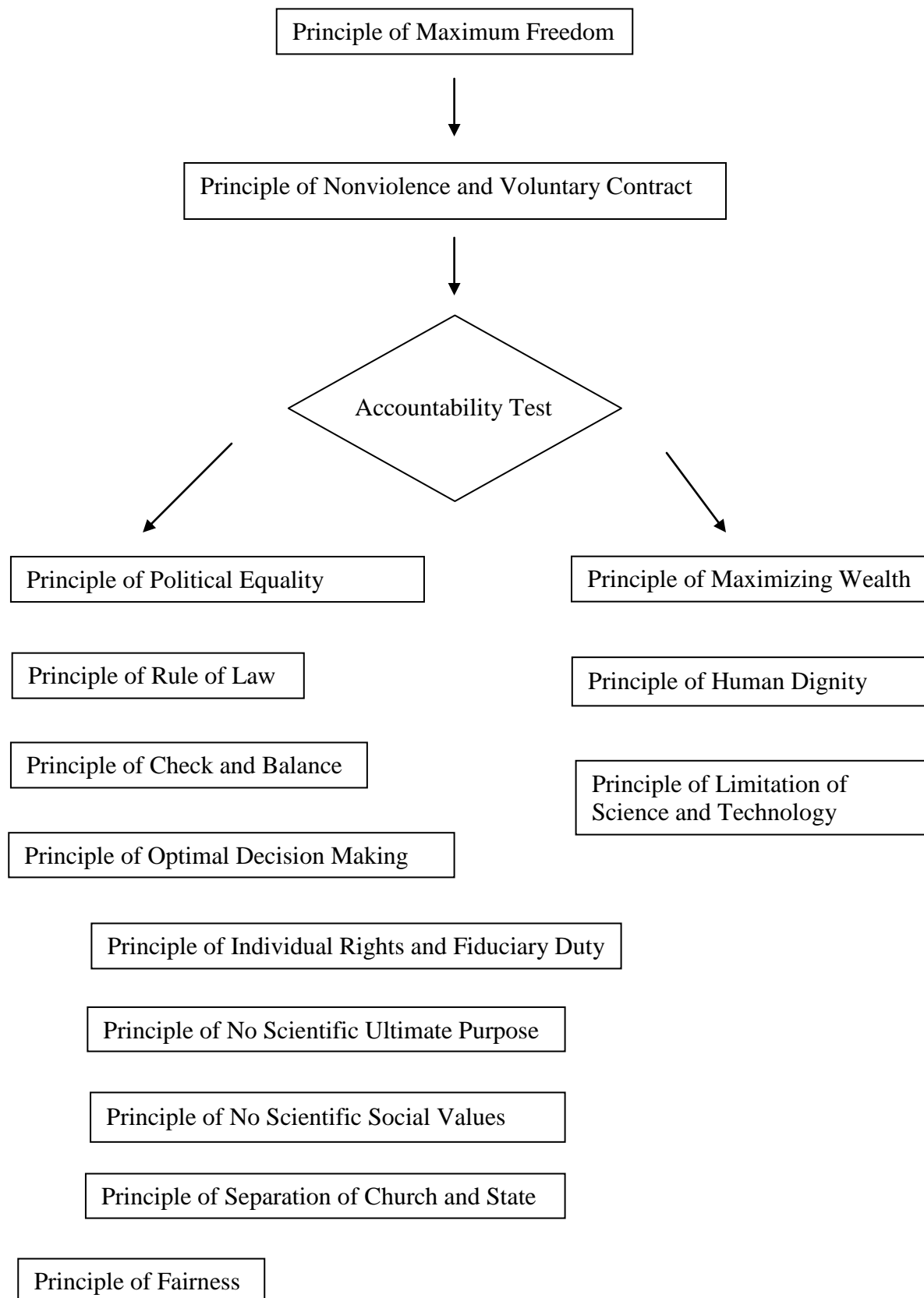
These 16 democratic principles can be grouped into three categories:

- (1) Interpersonal relationships. These 9 principles reflect the interpersonal relationships in the equilibrium state include principle of nonviolence and voluntary contract, principle of political equality, principle of the rule of law, principle of separation of power, principle of check and balance, principle of optimal decision making, principle of individual rights and fiduciary duty, principle of fairness, principle of human dignity, and principle of globalization.

- (2) People and environment relationship. These 3 principles reflect the principle of maximizing wealth, principle of limitation of science and technology, and principle of individual rights and fiduciary duty.
- (3) People's personal freedom, philosophy, and spirituality. These 4 principles are the principle of maximum freedom, principle of no scientific ultimate purpose, principle of no scientific value system, principle of separation of church and state.

It is easy to see that the political equilibrium state has very refined interpersonal relationships. That is not surprising because the politics is about resolving conflicts among free wills.

These 16 democratic principles are also summarized in a figure in the next page for the easy reference.



4 Fundamental Design Flaws of United State Constitution

In this section, we will compare the US constitution to each of the 16 democratic principles. The flow is arranged according to the order of 16 democratic principles were presented in an earlier paper [10].

4.1 Flaws according to Principle of Maximum Freedom

The principle of maximum freedom is one of most important principles of the equilibrium political state. While the US is one of freest countries in the world, the constitution fails to provide a mechanism to ensure the individual freedom is maximized by squeezing bureaucracy, laws and regulations of the federal, state, and local governments to the absolute minimum.

4.1.1 Set No Limit on Bureaucratic Complexity

Despite the long and cherished tradition of mistrusts of governments in the US, the laws and regulations of federal, states, and local governments have been ever increasingly complicated. At the current rate of increase, in a few centuries from now, the bureaucratic complexity would completely overwhelm the citizens and the governments.

In the news media, we often hear how unproductive the congress has been. The productivity of legislators is often measured by how many laws they proposed and passed. However, the other equally important responsibility of legislators should be measured by how much effort they put in to simplify and repeal the existing non-essential laws and regulations.

One imperfect measure of the amount of federal rules and regulations is the annual page size of the Federal Register, which is the daily depository of all proposed and final rules and regulations of the federal government. According to a paper [17] by Clyde Crews Jr. titled “Ten Thousand Commandments”, in 1940s and 1950s, on average the Federal Register was about 10,990 pages annually. From 2000 to 2009, on average it was 73,018 pages. At this rate of increase, 500 years from now, the Federal Register will be about 277 billion pages annually.

US citizens should expect that laws and regulations of different levels of government to be simple and easy to follow. And in theory, they are entitled to enjoy the maximum amount of freedom. However, the constitution fails to put any hard limit on ever increasing complexity of the United States legal and regulatory system.

The US constitution itself is exemplary in terms of the simplicity and easiness to read. The US constitution is the shortest written constitution in the world with 7 articles and 27 amendments.

4.1.2 Set No Limits on Size of Governments

A closely related problem is the ever increasing size of the federal government. One good measure of the size of federal government is the spending of different levels of governments as the percentage of GDP.

Between 1930 and 2012, federal government [18] receipts increased from 3.3% of GDP to 16.5%, and federal expenditures rose from 3.5% of economic output to 24.0%. State and local governments also expanded but at much smaller rates. Between 1930 and 2012, state and local government receipts increased from 8.0% of GDP to 13.0%, and federal expenditures rose from 9.1% of economic output to 14.8%.

Significant percentages of government spending are for the management of rules and regulations. The rapid increase of the spending of federal governments is closely associated with ever increasing bureaucratic complexity of federal rules and regulations.

The US Constitution fails to set limits on the size of governments. In the world history, the ever increasing government spending and taxation has been closely related to the political decay and downfall of various governments.

4.2 Flaws according to Principle of Nonviolence and Voluntary Contract

Principle of nonviolence and voluntary contract consists of the principle of nonviolence and principle of voluntary contracts. When each individual attempts to maximize their freedom of choices, it will soon run into the conflicts with other individuals because the fundamental limitations of physics laws. The best resolution of conflicting free wills is through peaceful compromises. One central idea of quantum politics is to maximize individual freedom by the peaceful compromises through voluntary contracts. The US constitution is very weak on insisting the principle of nonviolence but very strong on voluntary contracts.

4.2.1 Right to Bear Arms Contradicts Principle of Nonviolence

The right to bear arms in the second amendment of the constitution is a directly contradiction to principle of nonviolence. The direct result of this contradiction creates a toxic social environment that allows and even indirectly encourages the resolutions of conflict free wills through the gun violence. That is the constitutional root cause of the epidemic gun violence in the United States.

The principle of nonviolence requires all conflicts among citizens to resolve in a nonviolence manner, while the constitutional right to bear arms essentially enables citizens to take a violent road to resolve their conflicts. Since the issue has been discussed extensively on the various media, we will keep it short.

4.2.2 Missing a Catch-All Mandate to Settle All Conflicts Peacefully

The constitution does not have an article to require all conflicts among citizens to be resolved peacefully. Given the simplicity of the constitution, there must many potential conflicts that have not been discussed in the constitution. For example, the constitution does not have an article about the secession of states. Historically the secession of the southern states was one of direct causes of the tragic American Civil War. If there were a catch-all clause in the constitution to resolve all conflicts peacefully, the American Civil War might to be fought in courts or voting ballots instead of the battle fields. In contrast, the recent independence movements of Quebec and Scotland have been handled very peacefully.

Looking forwards hundreds of years into the future, will there be another American Civil War possible? Of course, extremely unlikely. However, the US constitution has been almost unchanged over last 227 years. Without a constitutional guarantee of nonviolence, the possibility of another civil war is always there.

4.3 Flaws according to Principle of Political Equality

The principle of political equality requires all accountable citizens have the equal political rights. Although the idea that all men are created equal was enshrined in the Declaration of Independence, the constitution is falling short of the principle of political equality in several important ways. Historically women, black people, natives, Chinese, and Japanese citizens were mistreated during certain periods in this country.

4.3.1 Under-Representation of Populous States

Since each state can have two seats in the Senate, the populous states have the same representation in the Senate as states with much smaller population. In essence, the citizens in the populous states are under-represented in the Senate. For example, as of the Census data on April 1, 2010, the population of California is 37.25 millions, and that of Wyoming is 0.563 millions. There are empirical evidences [14] that more federal dollars have flown into less populous states. One infamous example in recent years was the funding of the bridge to nowhere in Alaska.

4.3.2 Lack Representation from District of Columbia

As of the Census data on April 1, 2010, the population of District of Columbia is 601,723 and growing at a rapid rate. The population of Vermont is 625,741, and that of Wyoming is 563,626. All these three states have 3 electors for the presidential election. However, Vermont and Wyoming both have 1 seat in the US House and 2 seats in the Senate while DC has ZERO representation in the US House or the Senate.

4.3.3 Lack Equal Opportunity to Become President and Vice-President

Article II, Section 1, Clause 5 of the constitution sets the requirements to hold the president and vice-president office: a citizen must be a natural-born citizen of the United States; must be at least thirty-five years old; must have been a permanent resident in the United States for at least fourteen years.

The principle of political equality requires the equal opportunity to become the president or vice-president for all citizens eligible to vote. The constitution unfairly and systematically excludes many qualified citizens. The ultimate choice of the president and vice-president should be made by voters not systematically by the constitution.

4.3.4 Failure to Prevent Winning Presidential Election without Most Popular Votes

The US electoral college system makes possible for candidates to win the presidential election without receiving the most popular votes. It clearly violates the

principle of political equality. In recent decades, the US electoral college systems has distorted the election system so much that a few swing states have disproportionate influence on the outcomes of presidential elections.

4.4 Flaws according to Principle of the Rule of Law

There is no obvious flaw in the US constitution according to the principle of the rule of law.

Nearly all American people would consider the rule of law as one of the most important cornerstones of their society. The United States has set a great example of a society based on the rule of law for the rest of the world. The impeachment of President Clinton, the resignation of President Nixon, the jailing of Illinois ex-governor Blagojevich, and the jailing of the famous billionaire businesswoman Martha Stewart are good examples proving that no one is above the law in United States.

4.5 Flaws according to Principle of Separation of Power

Although the principle of separation of power is well accepted by the American people, the US constitution fails to clarify the exact power of each branch especially for the US Supreme Court and the president. We will discuss the Supreme Court later.

4.5.1 Failure to Specify Limits of Presidential Power

With the rapid increase of the size of the federal governments, as the head of the executive branch, the presidential power has also increased without a clear boundary. The constitution fails to specify clear limits of the presidential power. In recent decades, the presidents and their administrations often openly refused to implement parts of the laws that passed by the congress and signed by current or previous presidents.

4.6 Flaws according to Principle of Check and Balance

There is no obvious flaw in the US constitution according to the principle of check and balance.

The principle of check and balance is widely accepted as a key democratic principle by the US population. The abuse of government power happened only occasionally. For example, the Internal Revenue Service had unfairly targeted a special group of nonprofit organization for intensive scrutiny based on their names and political leaning. These types of scandals were widely reported by the media and usually investigated thoroughly by the Congress and various government agencies.

4.7 Flaws according to Principle of Optimal Decision Making

The optimal decision making is one of weak area of the US constitution. The scientific decision making is possible only when the social science becomes branches of physics with the creation of physics laws of social science, and political problems solving becomes engineering questions.

The scientific decision making process has two well-defined steps: the scientific value-free probabilistic forecasting and the making choices with the value systems. Examples of the most scientific decision making process can be found in military headquarters and in the White House.

In a military conflict, the importance of the decision making of commanding generals is self-evident. Wars are life and death struggles. Any mistake in decisions of commanding generals could lead to fatal defeats and deaths of hundreds of thousands of soldiers. Therefore, the intense survival pressure has almost perfected the military decision making processes over thousands of years of wars. The modern military commanders like General Schwartzkopf in the First Persian Gulf War are always supported by armies of various top experts from many fields: experts on weather, experts on the enemy intelligence, experts on the military logistics, experts on public relationships, and experts on the world politics and economics. These experts would make sure that they have got the correct views of the reality of the battle fields, the correct dynamics of the evolution of the battle fields and the correct probabilistic forecasts of the future. As a commander of an international force of 750,000 troops, it is impossible for busy people like General Schwartzkopf to be an expert on vast important and highly-specialized subjects. The decision making of commanding generals must rely on the facts, analysis, forecasts, and recommendations provided by various experts.

The presidential decision making process in the White House is very similar to the military headquarters. The presidential decision making is supported by dozens of key advisors and thousands of people in various government agencies and departments. There are several intelligence agencies like CIA and NSA. There are armies of military planners in the Department of Defense. The president is hardly an expert on anything except the domestic politics. The presidential decision making machine has been working well in most situations. However, in recent decades, there were some very bad presidential decisions.

For example, President G. W. Bush's decision to invade and occupy Iraq was one bad decision. The decision was mainly based on the false intelligence of the existence of weapons of mass destruction in Iraq. President G. W. Bush's slow reaction to Hurricane Katrina was another example. The Hurricane Katrina was one of most destructive hurricanes in the US history. However, his advisors and his administration were surprised and totally unprepared when the hurricane hit. When the flood completely overwhelmed the initial rescue teams from FEMA and local polices, the most powerful nation on the earth was forced to watch helplessly the tragedy unfolding on the live national TVs.

Even though the president cannot be an expert on the Iraq intelligence or an expert on the weather forecast during Katrina, the president still has the ultimate responsibility as a leader to make sure the facts, analysis, forecasts, preparations, and planning by the various experts are sufficient and correct.

To summarize, the scientific decision making often requires experts in specialized fields to collect facts, perform analysis, and make probabilistic forecasts about the future. Also the scientific forecasting processes are ongoing that need constant monitoring and modeling on the new information, new facts, new dynamics, and new forecasts.

4.7.1 Lack of Scientific Forecasting in Congressional Legislative Process

While the congress is an equal branch with the executive branch theoretically, the decision making during the congressional legislative processes remains very primitive, comparing to the decision-making processes of military commanders and the executive branches.

Unlike the president, there are no dozens of key advisors or dozens government agencies and departments to help the congressman to make laws. In the year 2000, there are about 23700 congressional staffs including only 4400 non-partisan employees in the Congressional Research Service, Congressional Budget Office, Government Accountability Office, and polices. On average, each congressman has 8 non-partisan staffs and 35 other supporting staffs.

With small groups of 8 non-partisan employees for each congressman, the congress does not have the needed resources to make legislative decisions more scientific. Without sufficient expert supports, when the Congress makes laws in the health care industry, congressmen have to pretend they are health care experts; when the Congress makes laws in the financial industry, congressmen have to pretend they are financial market experts. The congressmen are supposed to be average folks from the main streets. They are hardly experts on anything except the local politics.

Yet the congress makes some most important decisions in the country. For example, in the fiscal year 2014, the Congress has to pass a \$3.8 trillion budget for the federal government. That is about \$863 million spending for each non-partisan employee. It is safe to conclude that most congressmen would have very only rough ideas where the \$3.8 trillion money goes. As a matter of fact, most federal government agencies do not even have annual fiscal reports of the balance sheet listing the asset, liability, and cash flows. In essence, the Congress receives almost no feedback on where \$3.8 trillion dollars went last year. It is a total mess.

The constitution should require the Congress to make laws and set budgets to use a more scientific and systematic approach.

Lack of the non-partisan professional expertise in the congressional staff is one key reason that the Congress has been paralyzed in recent years on urgent political issues like reducing medical costs. The Congress needs to ask the expert non-partisan congressional staff to come up the facts, analysis, recommendations, and legislative options available to stop the running away medical costs. Just like the president, the jobs of the congressmen should be simply to value the different non-partisan legislative options from experts.

4.7.2 Lack of Scientific Forecasting in Supreme Court Decisions

The judicial branch shares the same problems as the Congress for lack of scientific decision making process, although the scope of the Supreme Court is narrower. The Supreme Court is often asked to resolve legal disputes while the Congress is asked to govern the big country through the legislative process.

4.7.3 Lack of National Referendum

A democratic society have the opportunity to optimize the political decision making because the flexibility offered by the system. Only the democratic society can

offer the political decisions to be made through a broad range of methods: referendum, the voluntary process of the free markets, a group of representatives, a group of experts, or a pointed decision maker acting like a dictator with limited power or a military commander. Different decision-making processes have their own strength and weakness.

National referendum should be made available as one of choices for the US citizens.

4.8 Flaws according to Principle of Individual Rights and Fiduciary Duty

The constitution has done a great job to protect the individual rights through the Bill of Rights Amendments.

The constitution has done a good job to protect the rights of the minority. However, the constitution has failed to extend the protection others who are equally vulnerable like children, the unborn future generations, foreigners, animals, and other living creatures.

The principle of fiduciary duty says that the collective decision makers have fiduciary duty to guard interests of other citizens including minority, woman, children, the unborn future generations, foreigners, animals, other living creatures, and the environment in general. Fiduciary duty is a basic relationship of trust between two parties. The trustee has legal duties to look after the best interest of other parties. In the case of no conflicting interests, the trustee should exercise his or her best judgment and the best effort to look after the other party's interests. In the case of conflicting interest between trustee and the other party, the trustee should follow some conflict resolving rules.

4.8.1 Failure to Protect Interests of Future Generations and Fiscal Policy

One of major problem of the current constitution is its failure to protect interests to our children and the unborn future generations. Current skyrocketing federal budget deficits and the astronomical promised future financial liability are direct results of the financial abuse of our children and the unborn future generations by current and previous generation voters.

The debates about how to deal with government budget deficits are raging all over the world. In US, the federal government forced to shut down for 16 days in October, 2013 because of the failure to pass a budget through congresses, and barely averted a default of federal government obligations due to failure to raise the federal debt ceiling limit. The city of Detroit filed the largest municipal bankruptcy in the US history on July 18, 2013, despite Michigan State constitution's balanced budget requirement. In Europe, the sovereign debt crisis has dragged down the entire EU economy since late 2009 with no end in sight. In Japan, the government debt to GDP ratio is well over 200%, which is one of the highest in the world.

There is a permanent equilibrium solution to government budget deficits. Surprisingly the equilibrium solution comes from the first principles of quantum physics. The political equilibrium structure has the time translational symmetry in treating different generations equally. One result of applying physics laws of social science to study the most stable political structure is that the most stable political structure is not

only to require the majority voters must deal with minority voters fairly to avoid the tyranny of the majority, but also to require the voting generation must exercise their fiduciary duty to their children and future generations. In terms of government budget deficits, the fiduciary duty means that the current voting generation must take the full responsible of the current government budget deficits or surplus. The permanent equilibrium solution of government budget deficits is legally and personally held the voting generation accountable for the current fiscal surplus and deficit at all level of governments. In contrast to the balanced budget approaches, the permanent equilibrium solution allows deficit spending and government debt as long as the government debt must be paid off by the responsible borrowers and voters. The permanent solution to government budget deficits presented is consistent with a different line of reasoning in economics, which is known as the tragedy of the commons. In cases of government budget deficits, the tragedy of fiscal abuse happens because the exact ownership of government budget deficits by which generation is not specified clearly in the constitution, and current voting generation financially takes unfair advantage of their children and the future generations, who virtually have no political power. Details of this research will be published elsewhere.

To summarize, the constitution must protect interests of our children and the unborn future generations in the manner it protects the interests of the minority.

4.8.2 Failure to Protect Animals and the Environment

Along the same logic, the constitution must extend the protections to animals, plants, other living creatures, and the environment in general.

Animals, plants, other living creatures, and the environment exist long before the arrival of the human race. They have nature rights to share the planet with the humanity. The environment degradation on the global scale in last few centuries is alarming. One reason for this is that governments around the world have not taken our fiduciary duty to other living creatures seriously. We have not granted other living creatures enough constitutional rights.

The lifespan of most people is less than 100 years. However, the damage we inflict now will last much longer than that. We have no right to destroy our current environment, and we have obligations to make our planet a good place to live for all living creatures on the planet, including our future generations, for thousands and millions of years to come.

4.9 Flaws according to Principle of No Scientific Ultimate Purpose

One key principle of the political equilibrium state is the principle of no scientific ultimate purpose. Quantum politics can provide the scientific ultimate purpose for neither individuals nor the society. If there were a scientific and universal ultimate purpose of the human society, all political decisions would be evaluated based that ultimate purpose. It would soon lead the human society into a dark road to serfdom, where individual freedom and individual rights do not matter.

4.9.1 Failure to Forbid Government to Create Ultimate Purpose

The constitution should forbid the government to create an official ultimate purpose for the society. The individuals can set their own ultimate purpose but the not the government.

The government can set various temporary goals but not one overwhelming long-term goal at the cost of the individual freedom and individual rights. Some of such goals could be the US domination of the world, a worldwide Christian or Islamic government, and a communist world government.

In last 227 years, American people have been wise enough not to fall into the trap of promised utopias by politicians. However, the danger and the temptation are always there. President John F. Kennedy once said: “My fellow American, ask not what your country can do for you, ask what you can do for your country.” President Kennedy was very wrong. Citizens should always ask what the government can do for them. That is their political rights and the government exists for servicing citizens. And citizens should be always skeptical about what government wants you to do because that could be a slippery road to disasters like the fascism and communism movement in German, Japan, Soviet Union, China, and many other countries.

4.10 Flaws according to Principle of No Scientific Value System

4.10.1 Failure to Forbid Government to Create Official Value System

Following the same logic in previous section, the constitution should forbid the government to create an official value system for the society. The individuals have their own value systems but the society must not have an official value system.

Unlike the ultimate purpose, people always need to the value system to make rational choices all the time. It is very attempting to create an official value system for the society so that strangers on the street would be more think and behavior like us. However, there is no scientific base to create an official value system. The culture diversity and culture pluralism are the direct results of the diversity of the value systems of a society.

The constitution framers were very wise to forbid the creation of official religion. We should extend the separation of church and state to forbid the creation of the official value system. The value system is very closely related to personal religions and philosophy.

4.10.2 Failure to Prevent Dictatorship of Supreme Court

Despotism is a form of government in which a single entity, called the despot, rules with absolute power.

While almost everyone believe that US is a liberal democracy, however, the careful reasoning would conclude that the United States is also a weak despotism or dictatorship of the United State Supreme Court because the justices of the United States Supreme Court are not democratically elected, have no term limits on how long their can

serve, their words are the laws of the land, and most importantly can impose their free wills and personal value systems and morality standards on the entire country.

The Supreme Court is less well designed in the constitution. For example, the most important power of the Supreme Court, the principle of judicial review, cannot be found in words of the constitution.

4.10.2.1 Failure to Specify Decisions Should Not Be Decided by Courts

The constitution fails to specify decisions that should not be made by the courts and especially Supreme Court. As a principle, there is one class of questions that should not be decided by the Supreme Court. This class of questions is regarding the official ultimate purpose, the value system, morality, and religious belief of the society.

The reason is simple because the opinions of the Supreme Court are laws of the land. Given their lifetime appointments, they could effectively set the official ultimate purpose, value system, morality standard, and religious belief of the society. This class of questions should be resolved through the Congress. Unlike justices on the Supreme Court, the Congressmen were democratically elected and do not have lifetime appointments.

One of the most divisive question in the American society is regarding the right of abortion. Both sides are very passionate about their positions. Fundamentally this is one of the morality, value system, and religious questions that should not be decided by the Supreme Court. This mistake of the constitution has been so profound that the abortion issue has hijacked the confirmation hearings of all recent new justices. The mistake also plays a key role in the recent presidential election dynamics because the new president could potentially appoint new justices to overturn the earlier Supreme Court abortion decision.

4.10.2.2 Failure to Set Up Democratic Process to Appoint Justices

The ideal of the court system is symbolized by the Lady Justice sculpture with a blindfold, a sword, and a balance scale in the front of many court houses.

According to the Constitution, the Supreme Court justices are appointed by the President and confirmed by the Senate just like any other political appointees in the executive branch. Therefore, fundamentally Supreme Court justices are political appointees. And there is no surprise that the political leanings of the justices are almost always the same as the presidents who appointed them in the first place. In other words, the Lady Justice sculpture does not have the blindfold any more. It raises an important question whether Supreme Court justices could truly be impartial.

Because their opinions are laws of the land, the justices should be generated through a more democratic process with fewer political influences.

4.10.2.3 Failure to Set Term Limits for Justices

The justices should not have lifetime tenures. Justices act more or less like dictators who can impose their personal free wills on the society with lifetime tenures. A term limit would reduce their influence of their personal views on the society.

4.10.2.4 Failure to Include Judicial Review

The constitution should give the power of the judicial review to the Courts explicitly. If the principle of judicial review is very important part of checks and balances, it should be granted by the constitution in the spirit of the rule of law.

4.11 Flaws according to Principle of Separation of Church and State

There is no obvious flaw in the US constitution according to the principle of church and state.

The religious freedom and the principle of church and state are widely accepted as key democratic principles by the US population. However, there are sizeable political movements trying to establish the Christianity as the official state religion in the US.

4.12 Flaws in According to Principle of Fairness

While there is no obvious flaw in the US constitution according to the principle of fairness, the constitution should have set a constitutional fairness test.

4.12.1 Failure to Set Fairness Test

The fairness question is some of most contended in the American society. Is economic inequality fair? Is the affirmative action fair? Is racial based discrimination fair? Is the inheritance fair? Is the welfare system fair?

In a free society, individuals have the freedom of choices. The choices come naturally with the responsibilities and consequences. It will be helpful for the constitution to set a legal test about what is consider fair in a free and democratic society.

Right now, the Supreme Court has the final say about what is considered fair in the US. However, the fairness should not be just opinions of the majority of justices, and should be part of the constitution.

4.13 Flaws according to Principle of Maximizing Wealth

There is no obvious flaw in the US constitution according to the principle of maximizing wealth. Over last two centuries, the US economic system works very well with the a few exceptions like mounting government debts in recent decades, which is related with the failure of the Constitution to protect the financial interests of our children and future generations.

4.14 Flaws according to Principle of Human Dignity

There is no obvious flaw in the US constitution according to the principle of human dignity. While the funding of the welfare system is a big problem in the US, the

welfare system generally works for the poor and less fortunate citizens. The runaway medical cost is a problem more related to the decision making process in the Congress.

4.15 Flaws according to Principle of Principle of Limitation of Science and Technology

There is no obvious flaw in the US constitution according to the principle of limitation of science and technology. Over last two centuries, the US high education system, research institutions, companies, and technology innovations have worked very well. The US relatively weak performance of the K-12 education system is a more political and social problem than problems rooted in the constitution.

4.16 Flaws according to Principle of Globalization

4.16.1 Make Necessary Changes for Global Integration

The globalization process has been speeding up considerably in recent decades especially with the invention of the internet. It starts to put the stress on the American society with many winners and many losers. The constitution has not been tested against the issues that will rise during the further global integration.

The framers of the constitution did not design the constitution to deal with the globalization process and the world government for the realization of the permanent world peace. Therefore, the constitution should make necessary changes for the further global integration.

4.17 Summary

After going through 16 democratic principles one by one, it is clear that the United States Constitution has many fundamental design flaws.

The constitution are well-designed in terms of principle of voluntary contracts, principle of the rule of law, principle of checks and balance, principle of separation of church and state, principle of individual rights, principle of maximizing wealth, principle of human dignity, and principle of limitation of science and technology.

The constitution could be improved in terms of principle of separation of powers, principle of fairness, and principle of globalization.

The constitution is deeply flawed in terms of principle of maximum freedom, principle of nonviolence, principle of political equality, principle of optimal decision making, principle of fiduciary duty, principle of no scientific ultimate purpose, and principle of no value system.

5 Concluding Remarks

By comparing with the equilibrium political structure, we have identified 22 fundamental design flaws of the constitution, which can be fixed through constitutional amendments.

The most important conclusion of this paper is that there are no fundamental design flaws other than the 22 we have identified in this paper using quantum politics. The US constitution is nearly perfect. It should emphasize that the views presented in this paper is not my personal political opinion. The fact that this paper is really an application of quantum physics to analyze the US constitution in a value-free way makes this paper much more interesting.

The fact that the US political structure has been worked out so well in last 227 years supports the idea that there is an equilibrium political structure in political science.

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